

At Parker Dam Colorado River water begins its 380-mile flow, through desert and mountains, to California cities.

The Battle of the Colorado

In this tough legal fight over water rights, the whole future development of Southern California may be at stake.

by FRANKLIN THOMAS

THE fight for the water of the Colorado River goes on. Of the seven states that use the river, four—Colorado, New Mexico, Utah, and Wyoming—have agreed on a way of distributing the share of the Upper Basin; one more, Nevada, has been taken care of in a separate agreement. But between the other two states, Arizona and California, the eight and a quarter million acre-feet of water per year that are left, remain a bone of bitter contention.

Focus of the fight at present is the Central Arizona Project Bill. This bill, if Congress passed it, would take from the Colorado 1,200,000 acre-feet a year. But that amount, added to the present and planned consumption of the two competing states, brings the total demand for Colorado River water well over the supply available. Since no one has yet discovered a way to increase the amount of water flowing in a river, one of the two states will have to modify its claims; and that, of course, is where the trouble lies.

The part of California directly threatened by a short-

age of Colorado River water lies south of the Tehachapi range, and is less than one-third of the total area of the state. This area supports more than half of the state's population and represents half of the state's wealth; and yet to it is tributary less than one percent of the surface waters of the state—the Colorado River excluded.

In this area, replenishment of surface flows and groundwater accumulations depends on highly variable rainfall seasons. The 72-year rainfall record in Los Angeles, representative of the coastal area, consists of alternating sequences of above-average and below-average rainfall extending from 10 to 17 years in length. Currently there has just been experienced the fifth sub-normal season in succession following the end, in 1944, of a 10-year wet sequence. The pattern of the record indicates that from 6 to 10 below-normal years lie immediately ahead (see "Are We In For a Long Drought?" by Franklin Thomas, E & S, Oct. '48). Water from the Colorado must fill the gap.

Water supply must increase as population grows. The population changes of Los Angeles are representative of the rate of increase in the metropolitan area. When in 1925 the first meeting was held to launch a Colorado River Aqueduct, the population of Los Angeles was approximately 1,000,000. In 1941, when Colorado River water became available, the population was approximately 1,600,000. At the present time it is estimated at 2,000,000. The population within the Metropolitan Water District—the whole area served by the aqueduct—is nearly 4,000,000.

Keeping pace with population growth, the use of Colorado River water in the coast counties has increased by annual increments of from 30 to 50 percent until during the summer of 1949 the delivery was 350 cubic feet per second, or nearly one-fourth of the capacity of the aqueduct.

The water representing full flow in the aqueduct, when added to the local supplies, would provide a total over the habitable portions of the valleys of the Los Angeles, San Gabriel, and Santa Ana Rivers of 1.5 acre feet per acre per annum. This amount of irrigation water would approximately meet the needs for agriculture and would also, by coincidence, adequately serve the needs of the area if transformed to urban development. Expressing the potentialities of Southern California's allocation of Colorado River water in another way, the allotment to the Metropolitan Water District of 1655 cubic feet per second of continuous flow would supply somewhat more than 6,600,000 persons living on city lots.

Thus it is apparent that, for several decades at least, the local and developed water from other sources, supplemented by the full flow of the Colorado River Aqueduct, will meet the needs of the area comprising the three valleys of the Los Angeles, San Gabriel and Santa Ana Rivers, and that portion of San Diego County included within the San Diego County Water Authority, a unit of the Metropolitan Water District. It is pertinent to cite here that not included are a substantial area to the west of the San Geronio Pass and also much fertile land in San Diego County where developments are permanently limited because no water is available.

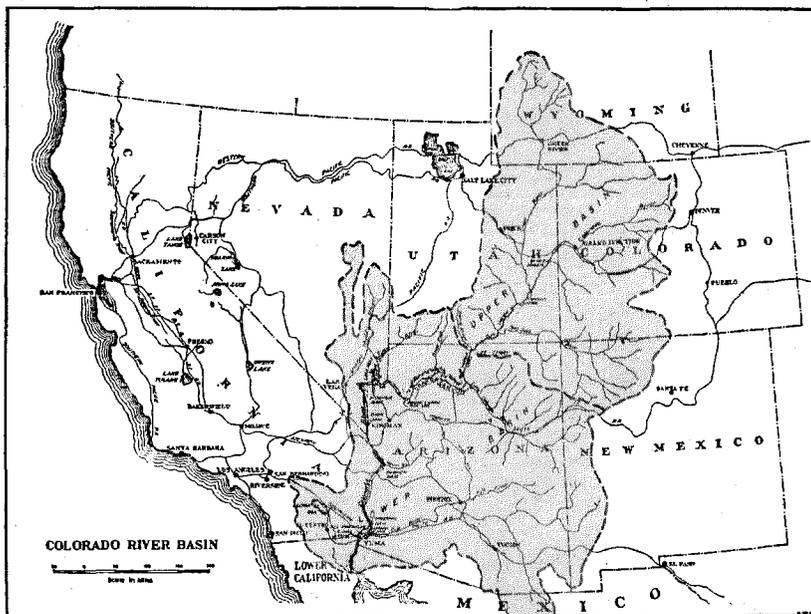
Furthermore, the yields of local basins are dependent upon the preservation of those basins from salt water

intrusion. If excessive overdraft upon these basins persists, as at present, when in some localities water is being pumped from below sea level as far as 15 miles inland, the yield of some of these basins may be lost.

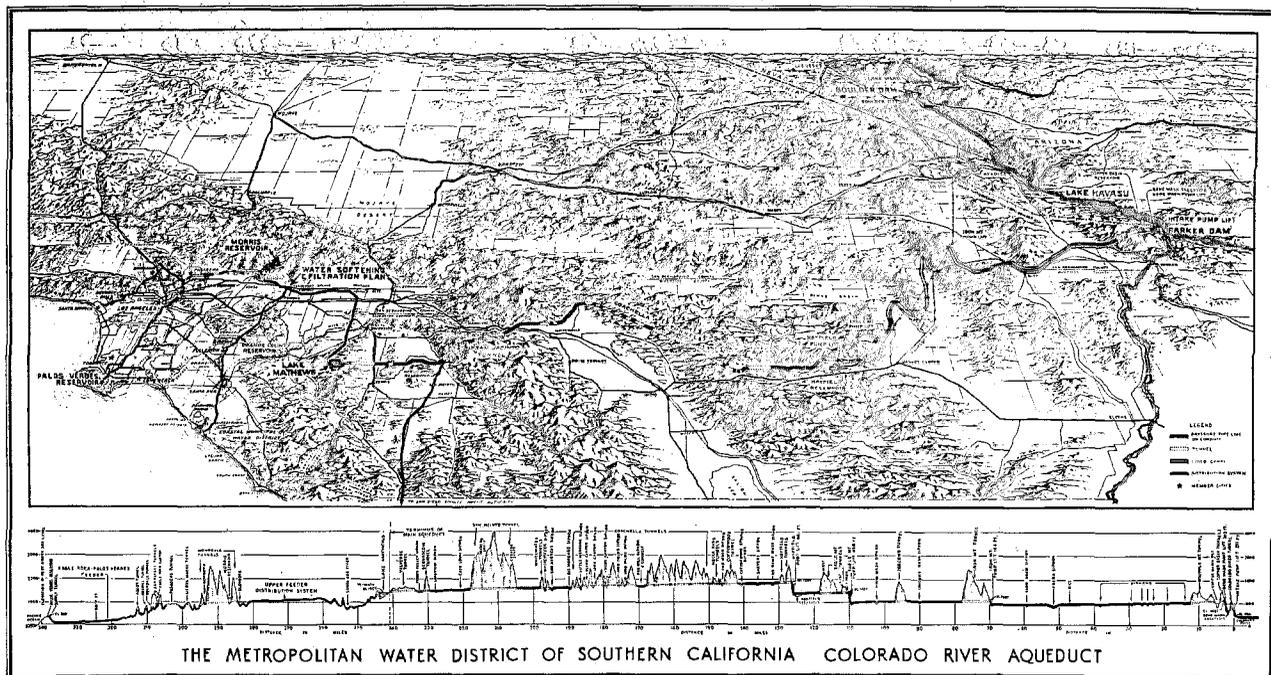
In the public interest it would be highly desirable for the entire metropolitan area to use imported water in order to relieve the overdraft upon the seriously depleted groundwater basins underlying much of the coastal plain. These basins should be permitted to recharge and be kept replenished as a cheaply stored reserve supply against the possibility that a drought may occur simultaneously on the local watershed and on the watershed of the Colorado River.

The most spectacular example of how outright disaster would have befallen some Southern California cities but for the availability of Colorado River water is the case of San Diego. As is well known, the City of San Diego has, during its period of development, been dependent largely upon water caught in reservoirs from occasional floods and carried over in storage through several years of negligible runoff from the tributary catchment areas. To meet a war time doubling of population up to 400,000 people and an inadequate replenishment of reservoir supplies, the Navy Department took emergency action to construct a connection with the Colorado River Aqueduct at the west portal of the San Jacinto Tunnel as the only means whereby a supplementary water supply could be obtained to support the civilian population and extensive establishments of the Navy and the Army. When Colorado River water began flowing into San Diego's San Vicente reservoir in December, 1947, the City had in storage water for barely one year's needs, while some of the other areas of the San Diego Water Authority had stored water sufficient to last only three months.

Such a narrow escape from disaster due to exhaustion of water in a locality of high strategic importance should serve as a warning to public officials of the necessity of assuring an ample water supply well in advance of the time of need. Other localities could be cited where the local groundwater supplies have diminished in quantity or deteriorated in quality, if near the ocean, until all or nearly all of the current needs are met from the Colorado River. New areas where local groundwaters are acutely overdrawn are seeking annexation to the Metro-



The Colorado River Basin extends over seven states—Wyoming, Nevada, Utah, Colorado, California, Arizona, New Mexico. All but California and Arizona have agreed on a way of distributing their share of the precious water.



THE METROPOLITAN WATER DISTRICT OF SOUTHERN CALIFORNIA COLORADO RIVER AQUEDUCT

Aqueduct provides the essential supplementary—in some cases the only—water supply for 4,000,000 Californians.

politan Water District in order to gain a supply of imported water.

Formidable as was the undertaking of providing the physical works required to transport Colorado River water 380 miles to the Pacific Coast across an unmapped desert, directing it through several mountain ranges, and lifting it 1616 feet, the construction was preceded by a series of compacts, legislative acts, governmental agencies, negotiations, agreements, and contracts even more formidable.

Under the chairmanship of Herbert Hoover, then Secretary of Commerce, representatives of the states of Colorado, Wyoming, Utah, New Mexico, California, Arizona, and Nevada, meeting in Santa Fe in November, 1922, drew up the Colorado River Compact. In the language of Article I: "The major purposes of this compact are to provide for the equitable division and apportionment of the use of the waters of the Colorado River System." Article II, in part, divides the area served by the Colorado into the "Upper Basin" and the "Lower Basin," the latter (which includes Southern California) being defined as "those parts of the States of Arizona, California, Nevada, New Mexico, and Utah within and from which waters naturally drain into the Colorado River System below Lee Ferry, and also all parts of said States located without the drainage area of the Colorado River System which are now or shall hereafter be beneficially served by waters diverted from the System below Lee Ferry."

Article III contains the all-important paragraph (b), concerning the interpretation of which widely divergent and hostile viewpoints have arisen. "(a) There is hereby apportioned from the Colorado River System in perpetuity to the Upper Basin and to the Lower Basin respectively the exclusive beneficial consumptive use of 7,500,000 acre feet of water per annum, which shall include all water necessary for the supply of any rights which now exist. (b) In addition to the apportionment in paragraph (a) the Lower Basin is hereby given the right to increase its beneficial consumptive use of such waters by one million feet per annum."

This compact did not become effective until 1944, when Arizona finally ratified it in the course of approving a water contract with the Secretary of the Interior. But in the interim, the Boulder Canyon Project Act was taking form. It became a law in 1928; and since the compact had not been ratified and therefore no agreement on the distribution of Colorado River water between the lower-basin states existed, there was written into the act a proposal:

"The States of Arizona, California, and Nevada are authorized to enter into an agreement which shall provide (1) that of the 7,500,000 acre feet annually apportioned to the lower basin by paragraph (a) of Article III of the Colorado River Compact, there shall be apportioned to the State of Nevada 300,000 acre feet and to the State of Arizona 2,800,000 acre feet for exclusive beneficial consumptive use in perpetuity and (2) that the State of Arizona may annually use one-half of the excess or surplus waters unapportioned by the Colorado River compact—"

The act provided, however, that it would not become effective until six states, including California, had ratified the compact and the California Legislature "shall agree inexorably and unconditionally—that the aggregate annual consumptive use (diversions less returns to the river) of water of and from the Colorado River for use in the State of California—shall not exceed 4,400,000 acre feet of the waters apportioned to the lower basin states by paragraph (a) of Article III of the Colorado River Compact, plus not more than one-half of any excess or surplus water unapportioned by said compact, such uses always to be subject to the terms of said compact." The California legislature in 1929 adopted such a limitation.

It is the conflict of interpretation of the compact and the limitation act regarding III-b water which constitutes one of the major issues of the controversy between the states of Arizona and California. Arizona contends that, by the limitation act, California's rights in the Colorado River are fixed at 4,400,000 acre feet per annum. California contends that its rights include,

besides the 4,400,000 acre feet per annum, half of the (surplus) 1,000,000 acre feet or more unassigned by the Colorado River Compact.

Four cases involving Arizona's contentions have come before the United States Supreme Court. In the second suit, started by Arizona in 1933, the Supreme Court rejected Arizona's claims that the 1,000,000 acre feet of III-b water was designated for Arizona's exclusive use and stated that the clear intent of the compact was that the water belonged "to the States of the Lower Basin and not specifically to Arizona alone."

The Boulder Canyon Project Act provided that, prior to any appropriations by Congress for constructing the Dam, it would be necessary for the Secretary of the Interior to execute contracts for the sale of power and the storage of water which would return the investment to the Federal treasury with interest in fifty years.

Power and water storage contracts

Such contracts were negotiated in 1930 with both public and corporate interests. These agencies were the Cities of Burbank, Glendale, Pasadena, and Los Angeles, and the Southern California Edison Company, the California Electric Company, and the Metropolitan Water District of Southern California. The Metropolitan Water District was allotted the largest block of firm power—36 percent of the plant output or 350,000 horsepower—for operating the five pumping stations. Thus the aqueduct became a major guarantor of the Hoover Dam, the source of its own power. During the interval before the pumping needs require all of the District's allocation of power, the surplus is being resold to other power distributors. The total of \$550,000,000 has been paid otherwise, or full payment guaranteed to the Federal treasury by Southern California interests concerned with irrigation, power, and domestic water, for the Metropolitan Aqueduct, Hoover Dam and Power plant, 11 transmission lines, and the All-American Canal.

All of these California projects utilizing the power or water of the Colorado River are entirely self-liquidating to such a degree as to satisfy the most exacting standards of economic feasibility. The agencies are financing the developments with private investors or through Federal contracts involving full repayment. In fact, the Metropolitan Water District in providing the funds for the construction of Parker Dam—to be owned by the United States—set a precedent which, unfortunately for the Federal treasury, will seldom be repeated. The head created by Parker Dam is being utilized to generate much of the electrical energy currently used in Arizona.

The complete financial underwriting of the Boulder Canyon Project was done by California agencies in 1930. Under the terms of the Act, Congress could not make appropriations for Hoover Dam until firm contracts for repayment of the cost with interest had been executed by the Secretary of the Interior. On the basis of these contracts (for storage of Colorado River water and for power for pumping water into and along the aqueduct) the Metropolitan Water District of Southern California has sold bonds to the public aggregating nearly \$200,000,000, with which it built the Colorado River Aqueduct. This locally financed aqueduct provides the essential supplementary, and for some localities the only, water supply for 4,000,000 Californians and for vitally important military and naval establishments along the Coast.

In the light of these facts, it is inconceivable that an informed Congress would authorize construction of a non-self-liquidating project, infeasible by any present

economic standards of the Bureau of Reclamation, and having no water right except for claims—which are in conflict with those of California—involving the water represented by the contracts between the Federal Government and the Metropolitan Water District of Southern California. Yet the Central Arizona Project Bill, which has been pending before Congress for the last two sessions, is just such an infeasible proposal.

The project, to be carried through at government expense, would cost \$700,000,000, would provide for the irrigation of field crops and involves, among other features, a pump lift of 985 feet for 1,200,000 acre feet of water per year from behind Parker Dam and an aqueduct 241 miles long to the valley near Phoenix. The power for the pumps would come from the proposed Bridge Canyon Dam 117 miles upstream from Hoover Dam.

The estimated cost of the project per acre is several times the value that the land to be benefited would have when improved. It is not contemplated that any of the construction costs would be repaid directly by the land to be irrigated, and the operating costs would be so high that they could only partly be paid by the acreage served.

In reporting to Congress upon the Central Arizona Project, the Secretary of the Interior has specifically called attention to the existing conflict between the two states on the interpretations of several of the contractual instruments which apply to the division of water in the Lower Basin of the Colorado River, and has stated that this conflict can be adjusted only by negotiations or by court adjudication, and that the Congress should give this conflict full consideration.

Negotiations fail

Since attempted negotiations between the two states have not produced any adjustment of their differences, it is California's contention that the issues should be submitted to the United States Supreme Court for adjudication. Such a suit would require the consent of Congress. Arizona has resisted this procedure and has endeavored to obtain authorization from Congress for the immediate construction of its project by the Bureau of Reclamation. Protracted hearings on the two proposals have been held this year by the Senate Committee on Interior and Insular Affairs, and by the House Committee on Public Lands on the Central Arizona Project Bill. As yet, the House Committee has declined to report out the bill. The Senate Committee early in August issued a majority report favoring the Central Arizona Project Bill, and at the same time recommended authorization of a Supreme Court adjudication of the controversy regarding water rights. Six months is specified as the time within which suit must be brought. The report recommended that no appropriations for construction be made while the Court had the case under consideration.

At such a time as consideration of the committee report comes before the Senate there is certain to be vigorous opposition to any contingent approval of the Arizona Project prior to a clear determination of the availability of an adequate water right for the project.

This issue affecting California's rights in the Colorado River is of such critical importance to a large section of the state that it calls for alert action by all Californians to impress upon Senators and Congressmen from all parts of the country the acute threat to established development which the Central Arizona Project Bill represents.